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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/811,807      | 03/30/2004  | Sang Bok Yun         | 2336-258            | 2829             |

7590                  03/14/2005

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| EXAMINER |
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VAN ROY, TOD THOMAS

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|          | 2828         |

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                            |                     |  |
|------------------------------|----------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>     | <b>Applicant(s)</b> |  |
|                              | 10/811,807                 | YUN, SANG BOK       |  |
|                              | Examiner<br>Tod T. Van Roy | Art Unit<br>2828    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

|   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/30/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION*****Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 rejected under 35 U.S.C. 102(b) as being anticipated by Nagai et al. (US 5,781,577).

With respect to claim 1, Nagai teaches the claimed semiconductor laser device (fig. 4(a)) comprising a first-conductivity type substrate (fig.4(a),#1), a first conductivity-type clad layer formed over the substrate (fig.4(a),#2), an active layer formed over the first-conductivity type clad layer (fig.4(a),#3), a second-conductivity type clad layer formed over the active layer while having a ridge spaced apart, at respective opposite longitudinal ends thereof, from a laser emitting end surface and an end surface opposite to the laser emitting end surface by a predetermined gap (fig.4(b),#10), and a current blocking layer formed on the second-conductivity type clad layer around the ridge (fig.4(a), b),#6). For further reference please also see (col. 1, lines 11-61).

With respect to claims 2 and 4, Nagai teaches the predetermined gap of claim 1 to be greater than 5 microns while corresponding to 10% or less of the distance between the laser emitting end surface and the opposite end surface (col.2 lines 12-20). Nagai discloses a separation of 20 microns, corresponding to 3.3-6.7% of the distance between the laser emitting end surface and the opposite end surface. For further reference please also see (col. 2, lines 12-20).

With respect to claim 3, Nagai teaches a method for manufacturing a semiconductor laser device comprising the steps of: sequentially forming over at least a first-conductivity type clad layer (fig.5(a),#2), an active layer (fig.5(a),#3) and a second-conductivity type clad layer (fig.5(a),#10) over a substrate (fig.5(a),#1); forming, on the second-conductivity type clad layer, a mask adapted to form a ridge such that the ridge is spaced apart, at respective opposite longitudinal ends thereof, from a laser emitting end surface and an end surface opposite to the laser emitting end surface by a predetermined gap (fig.5(b),#20a); etching the second-conductivity type clad layer to a predetermined depth by use of the mask, thereby forming the ridge (fig.5(c),#12); and forming a current blocking layer made of a first-conductivity type semiconductor material on the etched second-conductivity type clad layer around the ridge (fig.5(d),#6). For further reference please also see (col. 2, lines 1-63).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (US 5,781,577) in view of Sakata et al. (US PGPUB 2002/0187577).

With respect to claim 5, Nagai teaches the invention set forth above, and further discloses the use of wet etching for ridge formation (col. 2, lines 17-27). Nagai does not teach the use of an initial dry etch, followed by a second wet etching to form the ridge structure. Sakata teaches an improved ridge stripe etching process utilizing both dry and wet etching (pg. 3, col. 1, para. 46). It would have been obvious to one of ordinary skill at the time of the invention to modify the etching method of Nagai with that of Sakata to obtain better cross sectional shape and higher reliability.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (US 5,020,067) refers to buried ridge structures including predetermined gaps between the ridge and ends of the device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR *[Signature]*

*[Handwritten signature over printed name]*  
MINSUN HARVEY  
PRINCIPAL EXAMINER